

**AMENDMENTS TO THE CLAIMS:**

Claims 1-123 (**Cancelled**).

124. (**Previously presented**) A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

heating the fabricated article in a substantially oxygen-free atmosphere to a temperature above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked fabricated article while maintaining a substantially oxygen-free atmosphere;

forming a medical implant from the cross-linked fabricated article;

and

sterilizing the implant using standard means.

125. (**Previously presented**) A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

heating the fabricated article in a substantially oxygen-free atmosphere to a temperature above about 150°C, to cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked fabricated article while maintaining a substantially oxygen-free atmosphere; and

forming a medical implant from the cross-linked fabricated article.

126. **(Previously presented)** A medical implant prepared according to the process of claim 124.

127. **(Previously presented)** A medical implant prepared according to the process of claim 125.

128. **(Currently amended)** A cross-linked ultrahigh molecular weight polyethylene (UHMWPE) having a swell ratio of less than about 5 and has a degree of oxidation ranging from about 0.01 to about 0.15 at a depth of between about 20 µm to about 3 mm of the cross-linked UHMWPE, wherein the cross-linked UHMWPE is made by [[the]] a process according to claim 147 comprising irradiating the UHMWPE to form free radicals in the UHMWPE; melting the UHMWPE; and allowing the UHMWPE to cool.

129. **(Previously presented)** A medical implant comprising the ultrahigh molecular weight polyethylene of claim 128.

130. **(Previously presented)** A process for preparing a medical implant having an improved balance of wear properties and oxidation resistance comprising the steps of:

irradiating a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

heating the fabricated article to a temperature at or above about 150°C, for a time sufficient to recombine substantially all of the free radicals and cross-link the ultrahigh molecular weight polyethylene;

cooling the cross-linked fabricated article;

forming a medical implant from the cross-linked fabricated article;

and

sterilizing the implant using standard means.

Claims 131-142 (**Cancelled**).

143. **(Previously presented)** A process for preparing a medical implant having improved wear and oxidation resistance, wherein the method comprises:

irradiating a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;

heating the fabricated article to a temperature at or above the melting point such that the free radicals can recombine, thereby forming a cross-linked fabricated article;

forming an implant from the cross-linked fabricated article; and

sterilizing the implant using standard means.

144. **(Previously presented)** The process according to claim 143, wherein the standard means include heat.

145. **(Previously presented)** The process according to claim 124, wherein the standard means include heat.

146. **(Previously presented)** The process according to claim 130, wherein the standard means include heat.

147. **(Currently amended)** A process for preparing a medical implant having improved wear and oxidation resistance, wherein the method comprises:

irradiating a fabricated article comprising ultrahigh molecular weight polyethylene to form free radicals in the ultrahigh molecular weight polyethylene;  
[[and]] melting [[a]] the fabricated article comprising ultrahigh molecular weight polyethylene in order to ~~form free radicals in the ultrahigh molecular weight polyethylene and~~ cross-link the ultrahigh molecular weight polyethylene and then allowing the fabricated article to cool; and

forming an implant from the cross-linked fabricated article.

148. **(Previously presented)** The process according to claim 147, further comprising sterilizing the implant using standard means.

149. **(Previously presented)** The process according to claim 148, wherein the standard means include heat.